1. Oath/Declaration

The Office states that the oath or declaration is defective and that a new oath or declaration in compliance with 37 CFR 1.67(a) is required. Applicants submit herewith a new oath or declaration as requested.

2. Claim Objections

The Office states that claims 5-6 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim may not depend from another multiple dependent claim. Claims 5-6 have been amended herein accordingly. Reconsideration and withdrawal of the objections is respectfully requested.

3. 35 U.S.C. §102 Rejections

Claims 1-4 have been rejected under 35 U.S.C. §102(b) as being anticipated by JP 47-016816 (JP '816). The Office asserts that

> JP '816 discloses a process for the treatment of a coating film comprising the steps of coating a solution containing fine particles of metal and a metal oxide, including gold and titanium oxide, on a substrate; irradiating the coated film to light in the presence of humidity; and sintering the obtained film. See the English translation of the claim; page 2, left column, line 40 to right column, line 7; and the Example.

Applicants respectfully traverse.

Applicants claim, in claim 1, a method of producing a light absorbing pattern film coated article with a transmitted light spectrum distribution corresponding to the pattern of a photomask, wherein a light absorbing film coating solution, containing a silicon oxide raw material, a titanium oxide raw material, which contains titanium oxide microparticles, and a gold microparticle raw material, is coated onto the surface of a substrate, the photomask is positioned on top of said coated film, ultraviolet light is irradiated onto said coated film, and said coated film is thereafter heated.

JP '816 describes the use of Ti(OC4H9)4 as the Ti component and Si(OC2H5)4 as the Si component. The coated film is irradiated with US and then subjected to heat at 600°C for about 3 minutes.

As set out in the present specification,

> Titanium oxide is the component that raises the refractive index of the film and shifts the coloration (transmission color tone) by the gold microparticles from a red color to a blue-green color. Titanium oxide is also a component that increases the water resistance of the film. Titanium oxide is furthermore a component that increases the visible light reflectivity of the film coated glass article in accompaniment with the increase of the refractive index of the film.
>
> In the case where gold microparticles are to be formed in the film, titanium oxide microparticles are greater in the degree of shifting the transmission color tone of the film from a red color to a blue-green color and smaller in the degree of increasing visible light reflectivity of the film coated article in comparison with the same amount (as TiO2) in the light absorbing film coating solution of a titanium oxide raw material besides titanium oxide microparticles. Thus by making titanium oxide microparticles be present in the light absorbing film coating solution at an amount as TiO2 that is equal to or greater than the amount of titanium oxide raw material besides titanium oxide microparticles, a gold microparticle dispersed film can be obtained that exhibits absorption in the optical wavelength range of 300 to 1200nm and is low in visible light reflectance. Furthermore, by making titanium oxide micriparticles be contained in the light absorbing film coating solution, the change of transmission color tone, by the change of the amount of ultraviolet ray irradiated after coating of the light absorbing coating solution but prior to the baking of the film, can be made extremely large. (page 7, line 12 – page 8, line 16)

Further, as demonstrated by the Examples, the properties of the light absorbing pattern film coated article in accordance with the present invention are superior to light absorbing pattern film coated articles which contain no titanium oxide microparticles.

TABLE 1

No.	Silicon oxide stock solution A (g)	Titanium oxide microparticles (g)	Titanium oxide raw material C (g)	Chloroauric acid (g)	EC (g)
Example 1	26.3	2.66	0	1.6	19.4
Comparative Example 1	26.3	0	5.34	1.6	17.3
Example 3	26.3	2.13	1.96	1.6	18.0

In Example 1, the content of titanium oxide microparticles is 2.66g, while Comparative Example 1 contains no titanium oxide microparticles. As demonstrated and shown in Table 4:

> A comparison of Example 1 and Comparative Example 1 shows that the transmitted light chromaticity difference (ΔC) between the exposed regions and the unexposed regions of Example 1 was 13.1 and thus greater than the value of 2.4 for Comparative Example 1, and that the transmitted light hue difference between the exposed regions and the unexposed regions of Example 1 was 126 degrees and thus, greater than the value of 9 degrees for Comparative Example 1. (page 32, line 17 – page 33, line 1)

TABLE 4

No. Region	Ya (%)	Tg (%)	Tuv (%)	Transmission color tone	Transmission chromaticity and lightness	Exposed region and Unexposed region	
						Trans-mission color tone difference	Trans-mission hue difference
Example 1							
Exposed region	72.2	71.6	45.7	reddish purple	6.9/-2.8/84.4	--	--
Unexposed region	70.0	71.4	43.8	blue	-6.2/-3.9/84.9	13.1	126 degrees
Comparative Example 1							
Exposed region				pink	6.5/-3.2/81.5	--	--
Unexposed region				red	4.8/-1.5/84.3	2.4	9 degrees
Example 3							
Exposed region				pink	7.1/-6.7/78.9	--	--
Unexposed region				blue	-2.2/-8.1/79.4	9.5	118 degrees

As further demonstrated,

> The transmitted light spectrum distribution of an exposed region and an unexposed region of Example 1 are shown in Fig. 1. In Fig. 1, the solid line 1 indicates the transmittance of an exposed region and the dotted line 2 indicates the transmittance of an unexposed region. Also, the transmitted light spectrum distribution of an exposed region and an unexposed region of Comparative Example 1 are shown in Fig. 2. In Fig. 2, the solid line 3 indicates the transmittance of an exposed region and dotted line 4 indicates the transmittance of an unexposed region. (page 33, lines 8-17)

As clearly shown, in Comparative Example 1, wherein a raw material chelated by an acetyl acetate was used as the titanium oxide raw material and wherein no titanium oxide microparticles were included, the difference in the transmitted light color tones of the exposed regions and the unexposed regions of the colored film was small in comparison to that of Example 1 wherein titanium oxide microparticles were used.

As provided in MPEP-2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Or stated another way, "The identical invention must be shown in as complete detail as is contained in the ... claims. *Richardson v Suziki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d. 1913, 1920 (Fed. Cir. 1989). Although identify of terminology is not required, the elements must be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

It is clear from the foregoing remarks that the above- identified claims are not anticipated by the JP '816 reference.

As set out above, Applicants claim, in claim 1, a method of producing a light absorbing pattern film coated article with a transmitted light spectrum distribution corresponding to the pattern of a photomask, wherein a light absorbing film coating solution, containing a silicon oxide raw material, a titanium oxide raw material, which contains titanium oxide microparticles, and a gold microparticle raw material, is

coated onto the surface of a substrate, the photomask is positioned on top of said coated film, ultraviolet light is irradiated onto said coated film, and said coated film is thereafter heated.

The JP '816 reference, on the other hand, describes the use of Ti(OC4H9)4 as the Ti component and Si(OC2H5)4 as the Si component. The coated film is irradiated with UV and then subjected to heat at 600°C for about 3 minutes. JP '816 does not describe or suggest the use of titanium oxide microparticles as required by Applicants' claims.

Accordingly, claim 1 is not anticipated by the JP '816 reference. Claims 2-4 depend from claim 1 and, likewise, are not anticipated by the JP '816 reference.

4. 35 U.S.C. §103 Rejections

Claims 1-4 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2000272935 (JP '935) in view of either one of "Photoresponsive Formation of Gold particles in Silica/Titania Sol-Gel Films" by Yanagi et al. (Yanagi) or JP 6-191896 (JP '896). The Office asserts that

> JP '935 discloses a method for the production of a colored membrane-covered glass material having various transmitted tones of colors comprising the steps of coating a silica-titania-based covering liquid on a glass substrate and heating the coated product, wherein the silica-titania-based covering liquid comprises gold fine particle raw material, silicon oxide raw material, and titanium oxide raw material, with the titanium oxide raw material comprising at least 50 wt% titanium oxide fine particles. See the abstract. However, JP '935 does not disclose patterning the film by exposing the gold containing silica-titania coating film to ultraviolet light through a photomask prior to heating.
>
> Yanagi discloses a process for the photoresponsive formation of gold particles in silica-titania films comprising the steps of coating a film from a silica/titania precursor solution containing Au(III) ions, and exposing the coated films to ultraviolet light through a photomask. See the abstract, the paragraph bridging the right and left columns on page 1259. JP –896 discloses a process of changing the coloration tone of a coating comprising silicon alkoxide, titanium oxide raw material and gold salt comprising irradiating ultraviolet rays onto the coated film followed by baking. See the abstract and page 2, lines 2-19 of the present specification.
>
> It would have been obvious to one skilled in the requisite art to expose a gold-containing silica-titania film to ultraviolet light through a

mask, as taught by either one of Yanagi or JP '896, in the process of JP '935 because it is taught that irradiating a gold containing silica-titania coating through a mask provides for a controlled photodeposition process which enables the formation of micropatterns.

Applicants respectfully traverse.

Applicants respectfully submit that JP '935 was published on October 3, 2000. The priority of the present application is October 25, 1999. Thus, JP '935 does not qualify as prior art.

Yanagi uses Ti(OC2H5)4 as the Ti component and Si(OC2H5)4 as the Si component. The coated film is irradiated with UV and subjected to heat at 150-450°C for up to 80 minutes. Yanagi does not describe or suggest the use of titanium oxide microparticles as required by Applicants' claims.

JP '896 uses Ti(OCC(CH3)2)4 as the Ti component and Si(OC2H5)4 as the Si component is Examples 5, 7, 8, 10 and 11. The coated film is irradiated with UV and then subjected to heat at 600°C for about 6 minutes. JP '896 does not describe or suggest the use of titanium oxide microparticles as required by Applicants' claims.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 2142.

As set forth above, the cited references do <u>not</u> teach or suggest all the claim limitations. Further, JP '935 does not qualify as prior art. Thus, claim 1 is patentable

over Yanagi and JP '896. Claims 2-4 depend from claim 1 and, likewise, are patentable over Yanagi and JP '896.

CONCLUSION

Reconsideration and allowance of claims 1-4 is respectfully requested in view of the foregoing discussion. This case is believed to be in condition for immediate allowance. Applicant respectfully requests early consideration and allowance of the subject application.

Applicants believe that no extension of time is required since this response is being filed before the expiration of the specified time period. Applicants, however, conditionally petition for an extension of time to provide for the possibility that such a petition has been inadvertently overlooked and is required. As provided below charge Deposit Account No. **04-1105** for any required fee.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorney would appreciate the opportunity to do so.

Date: July 28, 2003

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE IN CLAIMS

Please note that additions to the claims are shown underlined and deletions are shown in brackets.

Please amend claims 5 and 6 as follows:

5. A method of producing a light absorbing pattern film coated article as set forth in [any of Claims 1 through 4] Claim 1, wherein said titanium oxide microparticles have an average particle diameter of 100 nm or less.

6. A method of producing a light absorbing pattern film coated article as set forth in [any of Claims 1 through 5] Claim 1, wherein said substrate is comprised of glass, ceramic, or resin.